B. Remarks

The claims are 1-71. Claims 1-15 and 23-71 have been withdrawn from consideration as being directed to non-elected inventions. The claims at issue are 16-22, with claim 16 being the sole independent claim. Reconsideration of the present claims is expressly requested.

Claims 16-22 stand rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. Specifically, the Examiner questioned the accuracy of the language in part (c) of claim 16, which states that the polymer is obtained by bonding finely fractionalized polymers. The Examiner has alleged that when a polymer is finely fractionalized by polymer cleavage, it can no longer be considered a polymer. Furthermore, the Examiner requested Applicants to explain why the polymer provided on a substrate is characterized by being made from fragments rather than by simply referring to its chemical structure.

With respect to the term "finely fractionalized polymer", this term is clearly defined in paragraph [0074] on page 16 of the substitute specification.[1] This definition clearly explains that a finely fractionalized polymer can be either a polymer or a monomer, depending on the cleavage. The mechanism and the sequence of steps for obtaining a polymer by bonding finely fractionalized polymers and the reasons therefor can be found throughout the specification and the drawings, for example in paragraphs [0094] - [0099], Comparative Example 2, and Figs. 5-7 and 23. The reasons for defining the polymer

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[1]/All recitations of page and paragraph numbers for the subject application in this paper refer to the substitute specification, which was filed on July 1, 2003 and entered by the Examiner.

provided on the substrate as being made from bonded fragments rather than by simply referring to its chemical structure are due to the fact that the re-formed polymer has a more uniform orientation, which results in a better surface treatment, as explained in detail in the specification and discussed below with respect to the substantive rejections. Accordingly, the above indefiniteness rejection should be withdrawn.

Claims 16 and 18-20 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 3,853,601 (Taskier). Claims 16-20 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by JP 62-267359 (Ona). Claims 16-20 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by JP 63-211369 (Yoshida). Claims 16 and 18-20 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by EP 0 542 485 A1 (Brown). Claims 16-21 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 5,998,650 (Schrock). Claims 16, 18, 19 and 21 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious from JP 1-30637 (Kutsuna). These rejections are respectfully traversed.

Prior to addressing the merits of rejection, Applicants would like to review some of the key features and advantages of the presently claimed invention, which are essential to understanding the differences between the instant invention and the prior art. The present claimed invention is directed to an element, which has a part of its surface treated with a polymer compound. For example, an element with a hydrophobic surface may be treated with a polymer so that at least a part of the surface becomes hydrophilic.

Conventionally, a surface treatment is conducted by, for instance, coating a surface with a polymer compound having the desired wettability characteristics. In order to

achieve a uniform and strongly adhered coating, the polymer compound has to be uniformly oriented and bonded to the surface. However, since it is hard to achieve a requisite uniform orientation of the functional groups in a polymer with respect to the surface (particularly for polymers having long chains), both the adherence strength (particularly when the surface is uneven) and the uniformity of deposition in conventional treatment techniques are not adequate.

To overcome this problem, the polymer used to treat the surface in the present invention is cleaved to obtain finely fractionalized polymers, which can be more easily re-oriented with respect to the surface than their larger polymeric predecessors (see paragraphs [0094] - [0100], [0111] - [0114] and Figs. 5-7 and 23). After the finely fractionalized polymers have been re-oriented so that their second parts[2] are pointed toward the surface and the functional groups are pointed away from the surface, the finely fractionalized polymers are at least partially re-bonded, resulting in a uniformly oriented, strong coating on the surface of an element being treated.

The superiority of the treated surface according to the present invention is clearly demonstrated by, for example, Example 1 and Comparative Example 2. Specifically, in both Example 1 and Comparative Example 2 a hydrophobic surface of a container was treated with polyoxyalkylene-poly(dimethyl siloxane). While in Example 1 this polymer was first finely fractionalized, re-oriented and then re-bonded, the surface in

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[2/] Second parts have an interfacial energy (i) different from that of the functional groups that impart the treated surface with the desired characteristics; and (ii) approximately equal to the surface energy of the part of the surface being treated,

Comparative Example 2 was merely coated with the above-mentioned polymer.[3] As a result, the coating in Example 1 was better adhered to the surface of the container than in Comparative Example 2 due to a more uniform orientation of the functional groups in the polymer, leading to a surface that had undergone a successful hydrophilic treatment. The coating in Comparative Example 2 failed to provide the surface of the container with hydrophilic characteristics comparable to those in Example 1 (see paragraphs [0128] - [0131]).

The references cited by the Examiner are directed to surface treatments with a polymer. However, unlike in the present claimed invention, the treatment in these references is performed in a conventional manner outlined above. Specifically, the coating polymers are not first finely fractionalized, re-oriented and then re-bonded. As shown by Comparative Example 2 in the subject application, the treated surface in the present invention is structurally different from that in the above references due to the fact that in the present invention the polymer was finely fractionalized and then at least partially re-bonded.[4]

Furthermore, with respect to Ona, this reference teaches mixing a polyester with cotton to treat a surface. However, Ona fails to disclose or suggest a group having an interfacial energy approximately equal to that of the surface, with the group being oriented

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[3]/The coating composition in Comparative Example 2 does not contain sulfuric acid, which is used to cleave the polymer in Example 1.

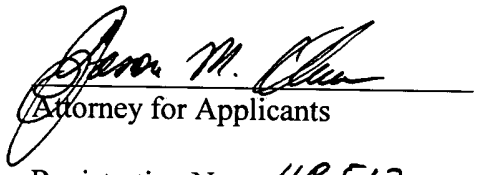
[4]/This (i) explains the reason for reciting the polymer in the claims in a product-by-process form; and (ii) shows that the process imparts distinctive structural characteristics to the final product. See M.P.E.P. § 2113.

toward the surface. This is because cotton has a surface energy different from that of a polyester.

In conclusion, Applicants respectfully submit that the cited references, whether considered separately or in any combination, do not disclose or suggest the combination of elements presently claimed. Wherefore, it is respectfully requested that all outstanding rejections be withdrawn and that the present case be passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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